

REMARKS

The issues outstanding in the Office Action mailed April 16, 2007, are the rejections under 35 USC §112 and §103. Reconsideration of these issues, in view of the following discussion, is respectfully requested.

Rejection Under 35 USC §112

Claims 1, 16 and 21 have been rejected under 35 USC §112, first paragraph. It is argued that these claims, reciting the range of 10 to 50% of zinc oxide replaced by zinc nitrate or carbonate, do not find written description in the specification. Applicants respectfully, albeit quite strongly, disagree with this analysis.

Page 3 of the Office Action invites applicants to point out where support for the range "10 to 50%" may be found in the specification. The Office Action notes that the specification discloses ranges of 10 to 100% and 20 – 40%. No more support for the added range is necessary, as amply explained to the Patent Office many years ago, for example, in the landmark decision of *In re Wertheim et al.*, 541 F.2d. 257, 191 USPQ 90 (CCPA 1976). *Wertheim* involved a situation where claimed ranges were allowed to be narrowed from a broader disclosure, for example, an original disclosure of a concentration of 25 to 60% with specific examples at 36% and 50%, was found to support a later claimed range of 35 to 60%, where the value of 35 was nowhere disclosed in the specification. The Federal Circuit's predecessor Court held that 35 to 60% was supported because the range was within the broader range clearly disclosed as part of the invention, even without an explicit teaching of a lower value of 35.

The *Wertheim* analysis, in the area of numerical ranges, has been long adhered to by the Courts, and by the Patent Office. For example, the Patent Office's own Board of Interferences held, in *McLaughlin v Roberts*, 197 USPQ 831 (POBI 1978), that a disclosure of 10 to 79% of product, preferably 40 to 79%, more preferably 40 to 60%, supported a claim to a range of 10 to 25%, even in the complete absence of a disclosure of 25%. The Board held that they were "convinced that one of ordinary skill in the art, given [applicants] disclosure, would consider that the use of the 10 to 25% range would be a part of his invention." The Board then cited *In re Wertheim, supra*.

It is accordingly clear that the present disclosure of 10 to 100%, preferably 25 to 40%,

unequivocally supports the presently claimed range of 10 to 50%. Withdrawal of this rejection is therefore appropriate, and strongly urged.

Rejections Under 35 USC 103

Claims 1-19 and 21 are rejected under 35 USC 103 over previously cited Stern '946, now taken with Kahre '091, Andersen '305 and Walker '310. Reconsideration of this rejection is respectfully requested.

As will be recalled, Stern discloses the production of a catalyst which can be obtained by any of impregnation, mixing or co-precipitation, as detailed at the bottom of column 5. The second technique in this portion of the patent, mixing, is described by patentees as:

"Mixing of at least one zinc compound and hydrated alumina in the presence of a peptizing agent (nitric acid, acetic acid). The zinc compounds are then selected from the group that is formed by zinc oxide, zinc hydroxide, zinc carbonate, and zinc hydroxycarbonate. The mixed product is then shaped by extrusion, and then dried and calcined."

Thus, it is once again maintained that the patent does not teach or suggest a process in which, first, zinc oxide *and* zinc nitrate or carbonate are, as a mixture, mixed with alumina gel that has been peptized in the presence of water and nitric acid, so as to form a paste. Instead, Stern '946 discloses a process in which a zinc compound and hydrated alumina are combined in the presence of a peptizing agent (e.g., nitric acid or acidic acid) and subsequently extruded. This recitation thus fails to teach the combination of a *mixture* of zinc oxide and zinc salt with a previously peptized alumina gel. At page 2 of the present Office Action, the language "mixing at least one zinc compound" is relied upon for the argument that Stern "teaches" a *mixture* of zinc carbonate and zinc oxide. At best, even if Stern *suggests* such a mixture, it does not "teach" the mixture, in the sense that "teach" implies an anticipatory disclosure. Thus, since Stern arguably *at most* suggests a mixture (and indeed, the rejection is one made under 35 U.S.C. §103), applicant's evidence of unexpected results clearly rebuts such a suggestion. In particular, the resistance to crushing of the present catalyst, determined as detailed at page 5 of the specification, are shown to be improved versus a catalyst which is produced from zinc oxide alone. See comparative Example 1, and note Table 1 at page 10 of the specification showing, for catalysts in accordance with the

invention, nearly double resistance to crushing in the poorest performing catalyst in accordance with the invention. This evidence provides further basis for patentability of the present claims which recite the use of such mixtures.

It is moreover noted that such unexpected results clearly establish that catalysts produced in accordance with the present invention differ physically from those known in the prior art, thus providing basis for patentability of catalyst claims 14, 15 and 19. While the present Office Action argues that the prior art "does *teach* a mixture of zinc oxide and zinc carbonate and is therefore not equivalent to the comparison made in applicants specification" (emphasis added), it is submitted that this analysis is in error. As discussed above, the prior art does not "teach" a mixture, since such would require an anticipatory disclosure. Instead, the prior art merely encompasses such a mixture, at *best*. Thus, showing that the mixture is unexpectedly advantageous over the oxide alone, as exemplified in the reference, clearly is probative evidence of non-obviousness.

Kahre does nothing to remedy the above noted deficiencies of Stern. Kahre discloses the production of, rather than a catalyst, a sorbent composition. Patentees' process involves contacting a zinc component, which can be a mixture of a variety of different zinc compounds, with an aluminum component and a disbursant, and then spray drying the mixture to form particles. The particles are then contacted with zinc oxide, or a compound convertible to zinc oxide. Thus, the spray drying, sorbent-producing process of this reference is hardly analogous to that of Stern, producing a catalyst used in the production of esters from vegetable oils or animal oil alcohols. A catalyst involving peptization and extrusion, as in Stern, is considerably different from a spray drying process, followed by impregnation. See, for example, column 3, line 52 through column 4, line 18 of Kahre. One of ordinary skill in the art would not find such a spray drying/mixing process to be relevant to the peptizing/extrusion of Stern.

Walker is cited at page 6 of the Office Action solely for its discussion of temperatures. However, Walker does nothing to remedy the above-discussed deficiencies. Similarly, Anderson, cited for its disclosure of pressure conditions, also fails to remedy the deficiencies in the rejection, as discussed above. Accordingly withdrawal of this rejection is appropriate and is respectfully requested.

Claims 1-19 and 21 have also been rejected under 35 U.S.C. §103 over Kahre taken

with Walker and Anderson. Reconsideration of this rejection is also respectfully requested.

As admitted at page 9 of the Office Action, Kahre fails to teach extrusion. Regardless of whether Walker teaches a process involving extrusion, one of ordinary skill in the art would not combine a reference using extrusion to produce a product with one involving spray drying, inasmuch as these processes are highly different and present different problems. A combination of components acceptable in spray drying is not necessarily acceptable in extrusion and vice versa. The Office Action provides no reason why one of ordinary skill in the art would expect any teaching from one reference to cross the divide to the other. Accordingly, this rejection also should be withdrawn.

The claims in the application are submitted to be in condition for allowance and passage to issue is respectfully requested. However, if the examiner has any questions or comments, he is cordially invited to telephone the undersigned at the number below.

No fee is believed due with this response, however, the Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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